FOOD SHOPPING BEHAVIOR OF PARENTS WITH YOUNG CHILDREN

by

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INTRODUCTION

At the end of the eighteenth century, the average consumer bought only a few different products each year from a limited number of local outlets (Thorelli and Thorelli, 1977, pp. 17-21). At each outlet the individual craftsman oriented the consumer to his particular product. As a result, knowing what to buy was not a problem for the 19th century consumer. In recent years there has been a marked increase in the number and complexity of products. In grocery stores, new foods and replacements for older foods are available in increasing numbers (Fusillo, 1976). More foods are processed and a greater variety of processing methods are used. Large supermarkets stock 6,000 to 8,000 different items (Thorelli and Thorelli, 1977, p. 18). New York supermarkets added 3,500 new items and dropped 3,900 in 1971. It is more difficult than ever for food shoppers to choose from available food products.

When consumers go to the supermarket, they must consider the nutrient needs of their families and the cost of that nourishment. Recent surveys have indicated that there has been a decline in nutritional well-being of Americans. In the 1965-66 United States Department of Agriculture's Household Food Consumption Survey (USDA, 1974), only 50 percent of the families surveyed met or exceeded the recommendations for a good diet in comparison with 60 percent with a good diet in a similar survey in 1955. A good diet was defined as one which equaled

or exceeded the Recommended Dietary Allowances for protein, calcium, vitamin A, thiamin, riboflavin and ascorbic acid. In 1965, 21 percent of the families consumed diets which provided less than two-thirds of the recommended amounts of those nutrients compared with only 15 percent in 1955.

According to the 1968-70 Ten State Nutrition Survey (DHEW, 1972), a significant proportion of the population was malnourished or was at a high risk of developing nutritional problems. As the educational level of the person who usually was responsible for buying and preparing the family's food increased, nutritional inadequacies of the children under 17 decreased. Among adults, there was a positive relationship between educational attainment and nutritional status. However, since the number of years of school completed is associated with other factors affecting nutrition, such as income status, it was not possible to identify the specific effect of education on nutritional status. In general, as income level decreased, the incidence of malnutrition increased. Poor food choices, such as failure to include foods rich in vitamin A and iron, led to inadequate diets. Dietary protein intakes were generally well above levels considered to be adequate, except for a medium prevalence of deficient protein values for pregnant and lactating women. There was a heavy emphasis on meat rather than use of less expensive protein sources.

Preliminary data on 10,216 persons from the Health and Nutrition Examination Survey (HANES) (DHEW, 1974) indicated

that the mean intakes for calcium, vitamin A, ascorbic acid and protein met or exceeded the recommended levels for most age groups. However, over 50 percent of the sample fell below the standard for vitamins A and C intake, and over 30 percent of the adults were below the standard for calcium. The intake of iron failed to meet established standards for females and for children under 17 years of age.

Today's food shoppers need information to help them improve the nutritional status of their families. A study to investigate the information needs of low-income homemakers was conducted by the California Cooperative Extension Expanded Nutrition Education Program (Ikeda, 1975). Information concerning food preparation, particularly food shopping, was the need expressed most frequently.

Communicating information to consumers to help them make wise choices in the supermarket is a major objective of nutrition education. Information regarding consumer food shopping behavior is basic to developing such a communication strategy. The present study was designed to study family and food shopping characteristics, food shopping knowledge and practices and frequency of food use by the food shopper of two-parent families with young children.

REVIEW OF LITERATURE

The Division of Consumer Studies, Bureau of Foods, Food and Drug Administration (FDA) conducted surveys in 1973-74 and in 1975 to determine nutrition knowledge and food purchasing behavior of adults who do at least half of the food shopping for their households (DHEW, 1976). Consumers were asked to indicate how they had altered their shopping habits during the previous year. Only half of the respondents reported changes during that period in the kinds or amounts of food they purchased. One-fourth of the consumers reported that they bought less meat or cheaper cuts of meat and about 13 percent bought fewer sweets and took greater advantage of specials and coupons. Fifty-five percent of the respondents shopped weekly, 25 percent more than once a week and 20 percent less than once a week.

Six shoppers in ten prepared shopping lists and seven in ten reported reading ads for specials before their last shopping trip. Many food shoppers observed dates on products (75%), used unit pricing (41%) and checked ingredient lists (46%). Sixty percent of the respondents reported that they read nutrition labels on food products and 33 percent said they used nutrition labeling in choosing foods and beverages. The survey showed a strong relationship between the amount of formal education of respondents and their reported ability to understand nutrition labeling well enough to use the information in making food choices. Those with a least a high school education indicated a better understanding of the label than people with

less education.

Other findings in the FDA study indicated a particular need for information concerning the functions and food sources of iron, thiamin, riboflavin and vitamins A and D. Consumers with low nutrition knowledge tended to have less education, lower incomes and less prestigious occupations. Correlations of nutrition knowledge, food beliefs and reported shopping behavior were positive and linear (Fusillo and Beloian, 1977).

In 1971, the Agricultural Research Service, United States Department of Agriculture (USDA, 1975), obtained information on food and nutrition knowledge, practices and opinions of 2,545 household members who had the major responsibility for food purchasing decisions. The respondents' education ranged from less than grade school through college, with the largest number being high school graduates. Forty percent of the respondents expressed a definite interest in more information on nutrition and 30 percent showed a slight interest. The factors mentioned most frequently as being major considerations in meal planning were balanced or nutritionally desirable meals, family likes and staying within the food budget. Homemakers reported that 60 percent of all household members, 5 years of age and older, ate one or more servings of food from each of the four food groups on the day studied. In the other 40 percent, milk was the food group lacking most frequently.

In 1976, the Gallup Organization, sponsored by Redbook magazine (Dwyer and Alston, 1976), interviewed 791 women using

some of the questions from the 1971 USDA survey. There was a 10 percent increase from 1971 to 1976 of respondents who wanted more nutrition information. Sixty-seven percent of the respondents had read nutrition labels during the last month. The influence of food budgeting on meal planning increased by 15 percent, and family likes decreased from 24 percent to 11 percent. Finding time to compare prices, plan balanced meals and prepare nutritious foods were not reported to be problems for women working outside the home.

The Economic Research Service (ERS) of the United States Department of Agriculture conducted a national survey during 1976 and 1978 of 1400 families to determine how food shopping behavior changed during that period (Kaitz, 1978). Sixty percent of the respondents shopped for groceries once a week both in 1976 and in 1978. The percentage of shoppers who shopped less than once a week declined from 20 percent in 1976 to 16 percent in 1978. Supermarket shopping increased from 89 percent in 1976 to 94 percent in 1978.

Data collected by ERS in 1976 were used to classify 1,174 respondents into three basic profiles of shopping behavior (Hacklander, 1978a). The largest percentage (39%) of the shoppers was motivated by satisfaction appeal. Those shoppers bought favorite brands, regardless of price, and enjoyed food shopping and experimenting with new and different products and recipes. The next largest group (32%) was more interested in efficient use of time and money. Those shoppers considered food shopping

a necessary but not enjoyable chore. They operated within a food budget and used price as the deciding factor for purchase. Eighteen percent of the respondents fit the careful shopper image characterized by planning menus, making out shopping lists, taking advantage of advertised specials, comparing prices between brands and reading nutrition labels. The remaining 11 percent did not fit clearly into any of the three profiles.

Data from the 1975 ERS national food survey (Hacklander, 1978b) were analyzed to determine how paid employment affected the food shopping behavior of 105 married, working women as compared to 127 nonworking women. No difference was found in the frequency and number of stores used for major shopping. Nonworking wives spent slightly more time in item selection. Households with working wives ate out more frequently, and both groups ate out most often in fast food restaurants and least often in restaurants where main entrees were priced over $5.00. Most women, working and nonworking, were classified as satisfaction appeal shoppers. Nonworking wives were just as likely to be time and money oriented as satisfaction appeal oriented. The careful shopper orientation was not the most prevalent in either group. The analysis indicated that families with working wives were similar to nonworking wives in their shopping behavior.

Abdel-Ghany and Schrimper (1978) analyzed data reported in the 1965-66 USDA Household Food Consumption Survey and found that differences in homemakers' education and household income had significant effects on household food expenditures. As

the homemaker's education increased, purchases of meat, dairy products, fruits and vegetables increased and accounted for more than 66 percent of total food expenditures.

Metheny et al. (1962) related the dietary patterns of 93 families with at least one preschool child to mother's employment, family income and marketing practices. Seventy-four percent of the mothers were employed outside the home. Most of the families (85%) shopped in supermarkets only. Sixty-seven percent purchased groceries once a week; 13 percent shopped weekly but made daily purchases as necessary. Mothers purchased the food in 67 percent of the families, fathers in 7 percent and in 24 percent they shopped together. Ninety-one percent of the mothers reported that their children requested the purchases of certain food items. No significant difference was found in the percentage of families using convenience foods whether the mother was unemployed or employed outside the home.

In a 1966 study of diets of preschool children in Champaign County, Illinois, Lamkin et al. (1970) interviewed 293 families with at least one preschool child. The majority of parents were high school graduates, and 46 percent of the fathers and 28 percent of the mothers had attended college. Twenty-eight percent of the mothers were employed outside the home. About one-half of the families reported spending $25 per week for food, one-third spent from $25 to $35 and 16 percent spent $35 or more. Three-fourths of the families shopped once a week for major purchases, and one-fourth shopped less often. Most

food shopping decisions were made by mothers, 9 percent by fathers and the responsibility was shared in 15 percent of the families. Food cost was the first consideration, followed by kind and quality of products in grocery store selection. Convenience was less important in food choices than was anticipated. The kind and quantity of foods purchased was influenced by preschool children. Eighty-seven percent of the respondents had shopped at more than one store in the week prior to the survey. About one-half of the shoppers, including three-fourths of the mothers who were college graduates, made a shopping list. Newspaper advertising was used regularly by three-fourths of the respondents. When compared with USDA Family Food Plans, the weekly purchases of a typical family met suggested quantities of dairy products and foods in the meat group, except for eggs, but fruits and vegetables were low. Protein, calcium and ascorbic acid were adequate, but vitamin A was low according to the 1968 Recommended Dietary Allowances.

Burt and Hertzler's (1978) study indicated that the mother was responsible for purchasing groceries in 72 percent of the 46 families. Although fathers were not solely responsible for food buying, they shared this duty in 28 percent of the families. Father's likes and nutrition were the most important factors influencing menu planning, followed by preparation time, food cost and mother's likes.

METHODS

Instrument

An instrument consisting of four sections (general information, food shopping knowledge, food shopping practices and frequency of food use by the food shopper) was developed and pretested (Appendix, p. 49-58). Permission to administer the instrument was granted by the Home Economics Committee on Research Involving Human Subjects (Appendix, p. 59-62). An informed consent form (Appendix, p. 62) and a letter of introduction (Appendix, p. 63), explaining the purpose and importance of the study, were prepared to accompany each questionnaire.

Data Collection

The instrument was mailed to all parents with children enrolled in three Kansas State University-sponsored child care centers (Child Development Laboratory, Infant and Child Care facility and Stone House Child Care Center). Completed forms were mailed to the Department of Foods and Nutrition. Follow-up letters (Appendix, p. 64) were mailed to encourage completion of the questionnaires.

Statistical Analyses

The response percentages for each question related to family and food shopping characteristics and food shopping knowledge and practices were calculated for the entire sample. Correlations among those variables were determined. Analysis of variance was used to determine the separate and combined effects

of parent's occupation and income on family and food shopping characteristics and shopping knowledge and practices scores. If analysis indicated the means were different, least significant differences were calculated to decide which group(s) differed.

Foods were assigned to food groups (milk, bread and cereal, meat - including animal protein and vegetable protein, fruits and vegetables - including high vitamin A, high vitamin C and other, high calorie/low nutrient foods, low calorie/low nutrient beverages and butter and margarine) (Appendix, p. 65). Individual consumption frequencies per day were determined.

Individual consumption frequencies for each of the Basic Four food groups (bread and cereal, fruits and vegetables, milk and meat) were analyzed using the Guttman (1951) scalogram technique, which allowed the cumulative ordering of food group consumption and ranking of the respondents. Individual rankings provided a description of overall consumption of the four food groups. In a perfect scale, a respondent at a given scale step number consumed foods at that step and foods ranking at lower step numbers.

Scale step order was determined by ranking the food groups from the highest to the lowest consumption frequencies at the level of recommended servings per day (breads and cereals - 4, fruits and vegetables - 4, milk - 2, meat - 2). Individual consumption frequencies were divided into positive and negative responses using TenHouten's (1969) formula for optimal cumulative percentages of the sample to be included in each scale step to

obtain an acceptable scale. A scalogram was prepared using Menzel's (1953) coefficient of scalability, which was a measure of the degree to which a sample forms a perfect Guttman scale. Minimum coefficient acceptability was suggested by Menzel to be between 0.60 and 0.65. Correlation coefficients were calculated to measure the relationship between rankings on the food scale and other variables in the study.

RESULTS AND DISCUSSION

Responses were obtained from 85 percent of the participating families. Questionnaires completed by seven single-parent families were not included in the statistical analysis of the data.

Family Characteristics

Characteristics of the 75 two-parent families are presented in Table 1. Most of the families (88%) had one or two children. All of the families had preschool children, 32 percent had elementary school children and 4 percent had teenagers. All fathers and approximately two-thirds (68%) of the mothers were employed outside the home or were attending school. Most parents were working towards or had completed college degrees. Annual income after taxes was less than $5,000 for 16 percent of the families, $5,000 to $10,000 for 19 percent, $10,000 to $20,000 for 43 percent and $20,000 or more for 17 percent.

Food Shopping Characteristics

Food shopping characteristics are presented in Table 2. Most of the families (81%) spent between $20 and $60 per week for food; approximately one-half (45%) spent between $40 and $60. Over one-half (68%) of the families spent $20 to $60 on a typical major food shopping trip. In a 1966 study, Lamkin et al. (1970) found that about half of their families spent $25 per week for food.

Forty-seven percent of the families shopped once a week

TABLE 1

Characteristics of 75 families

CHARACTERISTIC	PERCENTAGE
Family size	
3 members	44
4 members	44
5 members	8
6 members	3
7 members	1
Number of preschool children	
1	72
2	28
Number of elementary school children	
0	68
1	28
2	4
Number of teenagers	
0	96
1	1
2	3
Mother's occupation	
Employed	35
Student	33
Unemployed	31
No answer	1
Father's occupation	
Employed	60
Student	39
No answer	1
Mother's education	
Less than high school	1
High school graduate	1
1-3 years of college or other training	44
College graduate	25
Graduate school	27
No answer	1
Father's education	
High school graduate	3
1-3 years college	23
College graduate	13
Graduate school	61
Annual family income (after taxes)	
Less than $5,000	16
$ 5,000 - 10,000	19
$10,000 - 15,000	27
$15,000 - 20,000	16
$20,000 - 25,000	8
Over $25,000	9
No answer	5

TABLE 2

Food shopping characteristics of 75 families

CHARACTERISTIC	PERCENTAGE
Weekly food expenditure	
$20 or less	11
$20 - 40	36
$40 - 60	45
$60 - 80	4
$80 -100	3
No answer	1
Typical major food shopping trip expenditure	
$20 or less	4
$20 - 40	31
$40 - 60	37
$60 - 80	11
$80 -100	7
Over $100	9
No answer	1
Frequency of major food shopping trip	
More than once a week	8
Once a week	47
Twice a month	29
Once a month	16
Type of store used for major food shopping	
Chain supermarket (Safeway)	49
Discount supermarket (Food For Less)	32
Combination of chain and discount supermarket	5
Army commissary	10
Independent supermarket (IGA)	4
Number of food stores shopped at in last month	
1 store	4
2 stores	35
3 stores	42
4 stores	15
5 - 7 stores	5
Person who makes major food shopping decisions	
Mother	75
Father	0
Mother and father	25
Meals eaten weekly away from home by mother	
2 or less	71
3 - 5	21
6 - 10	1
More than 10	1
No answer	5
Meals eaten weekly away from home by father	
2 or less	52
3 - 5	29
6 - 10	11
More than 10	2
No answer	5
Meals eaten weekly away from home by children	
2 or less	52
3 - 5	28
6 - 10	6
More than 10	1
No answer	13
Weekly expenditure for food eaten away from home	
Less than $5	19
$ 5 - 10	31
$10 - 15	25
$15 - 20	11
$20 - 25	8
Over $25	4
No answer	3

for food and 45 percent shopped less frequently. In food shopping studies conducted by FDA (DHEW, 1975) and USDA (1975), approximately one-fourth of the respondents shopped less than once a week; in a study conducted by ERS (Kaitz, 1978), 16 percent shopped less than once a week.

The majority of the families (81%) shopped at chain or discount supermarkets. Metheny et al. (1962) found that 85 percent of the families shopped in supermarkets only, and Kaitz (1978) reported that 94 percent shopped in supermarkets. Most families (77%) shopped at two or three stores per month. Lamkin et al. (1970) reported that 87 percent shopped in more than one store each week.

In three-fourths of the families, the mothers made the major food shopping decisions; in the remaining families both parents made the decisions. The results were similar to those in other studies of families with young children (Lamkin et al., 1970; Metheny et al., 1962; Burt and Hertzler, 1978).

Approximately three-fourths (71%) of the mothers and one-half (52%) of the fathers ate two or less meals away from home per week. Most of the remaining mothers (21%) ate three to five meals away from home per week. Twenty-nine percent of the fathers ate three to five meals weekly away from home and 11 percent ate six to ten meals away. Approximately one-half (52%) of the children ate two or less meals away from home per week, and 28 percent ate three to five meals away

from home. Most of the families (86%) spent $20 or less weekly for food eaten away from home; approximately one-half (55%) spent $5 to $15.

The three most important factors influencing food purchases were cost, family likes and nutritive value of food (Table 3). Other factors in descending order of importance were convenience, father's likes, mother's likes and preschool child's likes. In earlier studies (USDA, 1975; Dwyer and Alston, 1976), nutritionally desirable meals, family likes and

TABLE 3
Factors influencing food purchases

FACTOR	IMPORTANCE			
	1st	2nd	3rd	Weighted Avg.[a]
Cost	38	23	32	32
Family likes	36	17	36	30
Nutritive value of food	19	43	9	25
Convenience	2	13	11	7
Father's likes	4	0	6	3
Mother's likes	2	2	2	2
Preschool child's likes	0	2	2	1
Ads, specials, coupons	0	0	2	0
Total[b]	101	100	100	100

[a]Average percentages derived from weighted frequencies (1st X 3, 2nd X 2, 3rd X 1)

[b]Total percentages not equal to 100 because of rounding

staying within the food budget were major considerations in meal planning. In agreement with results of previous studies (USDA, 1975; Dwyer and Alston, 1976; Lamkin et al., 1970) convenience had less influence than cost, family likes and nutrient value of food. Burt and Hertzler (1978) found that food cost and preparation time were equally important in menu planning.

Food Shopping Knowledge and Practices

Eight of the 12 true/false questions on the food shopping knowledge quiz were answered correctly by over 90 percent of the respondents (Table 4). The high percentage of correct responses suggests a relationship between educational level and food shopping knowledge because all but 6 percent of the mothers and fathers were attending or had attended college. A strong relationship between nutrition knowledge and educational attainment was observed in the FDA study (DHEW, 1976). Two of the four questions answered correctly by less than 90 percent of the respondents concerned labeling, indicating a lack of knowledge about food labeling even in college educated groups. The question regarding the calcium content of skim and whole milk was answered incorrectly by 20 percent of the respondents. Forty-four percent did not respond correctly to the question concerning the selection of canned foods according to intended use. The smaller percentage of correct answers on those two questions could have resulted from the improper interpretation of the questions rather than

TABLE 4

Food shopping knowledge

TRUE/FALSE STATEMENTS	CORRECT RESPONSES
	%
Lower priced canned fruits and vegetables are not as nutritious as higher priced ones.	96
There must be more beef than any other single item in stew if the list of ingredients reads, "beef, potatoes, carrots, salt,..."	63
When the same cereal is offered in packages of several sizes, the most economical buy is determined by comparing the cost per unit (e.g. cost per ounce.)	99
Canned food should be selected according to its intended use (e.g. fruit halves for dessert and fruit pieces for fruit cup.)	56
National brands are always superior in quality to store brands.	92
The nutrition label on a food provides information about the nutrient content for one serving of that food.	88
Fruit juices and fruit drinks are equivalent in food value.	93
A T-bone steak is more nutritious than a round steak.	93
Skim milk compares favorably to whole milk in calcium content.	80
Snack food such as candy, potato chips and pop are high in fats or carbohydrates and low in protein, vatamins and minerals.	96
The date stamped on certain foods helps the consumer judge the freshness of the product.	100
Cut-up chicken costs less than whole chicken	95

a lack of knowledge.

The percentage of families following certain food shopping practices are listed in Table 5. Most families (83%) made shopping lists. The percentage was higher than the 60 percent observed in the FDA study (DHEW, 1976), but it agreed with the finding of Lamkin et al. (1970) that a larger percentage of mothers with a college education made shopping lists.

Approximately one-half (47%) of the respondents planned menus before making shopping lists. About two-thirds (61%) of the food shoppers did not organize their lists either by store arrangement or by food groups, and three fourths of them did not restrict their buying to their lists.

About three-fourths (71%) of the families bought specials advertised in newspapers. In the FDA study (DHEW, 1976) 70 percent of the respondents read ads for specials before shopping; Lamkin et al. (1970) reported that 75 percent used newspaper advertising. Over 75 percent of the shoppers watched the checker tally the cost of the groceries, but only one-third checked their sales slips.

Three-fourths of the respondents read nutrition labels; about two-thirds (61%) read the list of ingredients on mixed products. In an earlier study (DHEW, 1976), 60 percent of the food shoppers read nutrition labels and 46 percent checked ingredient lists. They observed a strong relationship between the amount of formal education and ability to understand nutrition labeling. The education level of the respondents in

TABLE 5
Food shopping practices

PRACTICES	RESPONSES				
	Yes	Sometimes	No	No answer	Total[a]
	Percentage				
Made a shopping list	83	3	15	0	101
Planned menus before making a shopping list	47	4	49	0	100
Organized shopping list	37	1	61	0	99
Bought only what was on list	19	7	75	0	101
Bought specials advertised in the newspapers	71	4	24	1	100
Watched checker tally the groceries	80	0	19	1	100
Checked sales slip	36	4	59	1	100
Paid attention to nutrition labels	75	0	24	1	100
Compared prices of national and store brands	88	0	11	1	100
Compared unit costs	87	0	12	1	100
Read the list of ingredients on mixed products	61	0	37	1	99
Used cost per serving as a guide when buying meat	37	1	60	1	99

[a]Total percentages not equal to 100 because of rounding

this study may account for the high percentage reading nutrition labels.

Most shoppers (88%) compared prices of national and store brands. Eighty-seven percent of the respondents used unit pricing compared to 41 percent in the FDA study (DHEW, 1976). Cost per serving was used as a guide when buying meat by 37 percent of the shoppers.

Many of the food practices, which characterized the careful shopper in the Economic Research Service survey (Hacklander, 1978), were observed among food shoppers in this study. A larger percentage of them might be classified as careful shoppers than was reported in the ERS survey.

Effect of Parent's Occupation and Family Income on Family and Food Shopping Characteristics and Food Shopping Knowledge and Practices Scores

The distribution of the 75 families by occupation of the parents (student, employed or unemployed) and family income level is presented in Table 6. Groups were combined and analyzed to determine the effect of mother's occupation and family student status in all families, mother's occupation in nonstudent families and family income level on family size, number of preschool children, mother's and father's education, weekly food expenditure, typical major food shopping trip expenditure, number of meals eaten away from home by mother, father and children, weekly expenditure for food eaten away from home and food shopping knowledge and practices scores.

TABLE 6

Distribution of 75 families according to parents' occupation and family income level

Family Income Level	Parents' Occupation					
	Employed Father Unemployed Mother	Employed Father Employed Mother	Student Father Employed Mother	Student Father Student Mother	Employed Father Student Mother	Student Father Unemployed Mother
Less than $5,000	1	0	1	8	0	2
$ 5,000 - 10,000	1	3	3	5	1	1
$10,000 - 15,000	3	6	2	4	4	1
$15,000 - 20,000	6	4	1	0	1	0
$20,000 - 25,000	4	1	0	0	1	0
Over $25,000	3	4	0	0	0	0
No answer	1	1	0	0	1	1

Analysis of variance of six family and food shopping characteristics indicated that there were differences between employed or student mothers and unemployed mothers and among income levels (Table 7). Families with employed or student mothers had fewer family members, fewer preschool children, fathers with less education and children who ate more meals away from home ($p < 0.05$) than families with unemployed mothers (Table 8). There were more preschool children ($p < 0.05$) in families with incomes of $5,000 to $10,000 and $15,000 to $20,000 than at any other income level (Table 9). Mother's education was higher ($p < 0.05$) in families with incomes over $25,000 than in families with lower incomes (Table 9). There was more money spent ($p < 0.05$) on a major food shopping trip in families with incomes between $10,000 and $25,000 than in families with incomes less than $10,000 or over $25,000 (Table 9).

Analysis of variance of five family and food shopping characteristics indicated there were differences between student and nonstudent families and among income levels (Table 10). Nonstudent families were larger ($p < 0.05$) than student families (Table 11). Mother's education was lower ($p < 0.05$) in families with incomes below $5,000 than in families with higher incomes (Table 12). There was more money spent ($p < 0.05$) on a major food shopping trip in families with incomes $10,000 to $20,000 than in families with incomes of less than $10,000 or more than $20,000 (Table 12). Student families with incomes of $10,000 to $15,000 and nonstudent families with incomes of less than

TABLE 7

Analysis of variance of six family and food shopping characteristics of families with employed or student mothers vs. families with unemployed mothers at six income levels

Source of variation	df	Mean squares					
		Family size	Number of preschool children	Father's education	Mother's education	Major food shopping trip expenditure	Meals eaten weekly away from home by children
Group	1	3.79**	2.82****	4.69*	0.48	0.31	56.16**
Income	6	0.32	0.34*	0.32	2.57**	4.36**	2.54
Interaction	6	0.85	0.26	0.49	0.27	0.42	1.41
Error	59[a]	0.46	0.13	0.84	0.78	1.18	6.63

[a]58 for mother's education

*Significant at .05 level

**Significant at .01 level

****Significant at .0001 level

TABLE 8

Means and standard errors of four family and food shopping characteristics affected by mother's occupation

Characteristic	Families with employed or student mothers n = 51	Families with unemployed mothers n = 24
Family size	3.56±0.13	4.13±0.15
No. of preschool children	1.14±0.07	1.63±0.08
Father's education[a]	3.06±0.17	3.69±0.21
Meals eaten weekly away from home by children[b]	3.41±0.48	1.24±0.58

[a]Scoring scale: 1 = high school graduate
2 = 1-3 years of college
3 = college graduate
4 = graduate school

[b]Scoring scale: 1 = 2 or less
2 = 3 - 5
3 = 6 - 10
4 = 11 - 15
5 = more than 15

TABLE 9

Means[a] and standard errors of three family and food shopping characteristics affected by family income level

Characteristic	Family income level in thousands of dollars						
	Less than 5 n=12	5-10 n=14	10-15 n=20	15-20 n=12	20-25 n=6	Over 25 n=7	No answer n=4
No. of preschool children	1.22^{tv} ±0.12	1.58^{uv} ±0.14	1.16^{tv} ±0.10	1.58^{uv} ±0.11	1.50^{tuv} ±0.16	1.17^{tv} ±0.14	1.50^{tuv} ±0.18
Mother's education[b]	3.00^{tuxz} ±0.30	3.33^{t-xz} ±0.34	3.84^{u-z} ±0.25	4.18^{u-wyz} ±0.27	3.17^{t-xz} ±0.40	4.58^{vwy} ±0.34	3.25^{t-xz} ±0.54
Major food shopping trip expenditure[c]	1.94^{tuyz} ±0.36	2.67^{tuvxyz} ±0.41	3.40^{u-y} ±0.31	3.90^{v-y} ±0.33	3.33^{u-z} ±0.50	2.96^{t-z} ±0.41	2.00^{tuxyz} ±0.54

[a] Means in a row sharing a common superscript are not significantly different ($p < 0.05$) using LSD test.

[b] Scoring scale:
1 = less than high school
2 = high school graduate
3 = 1-3 years college or other training
4 = college graduate
5 = graduate school

[c] Scoring scale:
1 = $20 or less
2 = $20 - $40
3 = $40 - $60
4 = $60 - $80
5 = $80 - $100

TABLE 10

Analysis of variance of four family and food shopping characteristics and food shopping knowledge scores of student families vs. nonstudent families at five income levels

Source of variation	df	Mean squares				
		Family size	Mother's education	Major food shopping trip expenditure	Weekly food expenditure	Food shopping knowledge score
Group	1	2.69*	0.003	2.08	3.93**	0.02
Income	5	0.85	2.22*	3.23*	1.02	0.03*
Interaction	5	0.38	1.34	0.66	2.75***	0.02*
Error	60[ab]	0.51	0.77	1.08	0.56	0.01

[a]61 for family size

[b]65 for food shopping knowledge score

*Significant at .05 level

**Significant at .01 level

***Significant at .001 level

TABLE 11
Means and standard errors of family size affected by family student status

Characteristic	Student family n=37	Nonstudent family n=38
Family size	3.55±0.18	4.12±0.17

$5,000 and over $20,000 spent more money ($p < 0.05$) per week for food than student and nonstudent families at other income levels (Table 13). Food shopping knowledge score was lower ($p < 0.05$) for one nonstudent respondent with an income of less than $5,000 than for any other family (Table 13).

Analysis of variance of three food shopping characteristics indicated that there were differences between nonstudent families with employed mothers and nonstudent families with unemployed mothers (Table 14). Nonstudent families with unemployed mothers spent more money ($p < 0.05$) per week for food than nonstudent families with employed mothers (Table 15). Mothers and children in nonstudent families with employed mothers ate more meals ($p < 0.05$) away from home than mothers and children in nonstudent families with unemployed mothers (Table 15).

Correlations Among Family and Food Shopping Characteristics, Food Shopping Knowledge and Practices Scores and Food Shopping Practices

Correlations among family and food shopping characteris-

TABLE 12

Means[a] and standard errors of two family and food shopping characteristics affected by family income level

Characteristic	Family income level in thousands of dollars					
	Less than 5 n=12	5-10 n=14	10-15 n=20	15-20 n=12	Over 20 n=13	No answer n=4
Mother's education[b]	$2.18^{tv} \pm 0.46$	$3.63^{uv} \pm 0.26$	$3.91^{uv} \pm 0.20$	$4.11^{uv} \pm 0.34$	$3.55^{uv} \pm 0.46$	$3.25^{tuv} \pm 0.54$
Major food shopping trip expenditure[c]	$1.95^{tu} \pm 0.54$	$3.08^{tuv} \pm 0.31$	$3.64^{uv} \pm 0.24$	$3.56^{uv} \pm 0.41$	$3.09^{tuv} \pm 0.54$	$2.00^{tu} \pm 0.52$

[a]Means in a row sharing a common superscript are not significantly different ($p < 0.05$) using LSD test.

[b]Scoring scale:
1 = less than high school
2 = high school graduate
3 = 1-3 years college or other training
4 = college graduate
5 = graduate school

[c]Scoring scale:
1 = $20 or less
2 = $20 - $40
3 = $40 - $60
4 = $60 - $80
5 = $80 - $100
6 = over $100

TABLE 13

Means[a] and standard errors of weekly food expenditures and food shopping knowledge scores affected by family student status within income level

	n	Weekly food expenditure[b]	Food shopping knowledge score
Families with student fathers and/or mothers			
Less than $5,000	11	$1.91\pm0.22^{pqs-y}$	$0.89\pm0.03^{p-s}$
$ 5,000 - 10,000	10	$2.30\pm0.24^{p-y}$	0.84 ± 0.03^{pqs}
$10,000 - 15,000	11	$2.70\pm0.24^{q-tv-z}$	0.93 ± 0.03^{prs}
$15,000 - 20,000	2	$3.00\pm0.53^{p-tv-z}$	$0.92\pm0.06^{p-s}$
Over $20,000	1	$3.00\pm0.75^{p-uw-z}$	$1.00\pm0.09^{p-s}$
No answer	2	$1.50\pm0.53^{pqt-x}$	$0.92\pm0.09^{p-s}$
Families with nonstudent mothers and fathers			
Less than $5,000	1	$5.00\pm0.75^{t-z}$	0.58 ± 0.09^{t}
$ 5,000 - 10,000	4	$2.25\pm0.37^{p-z}$	$0.92\pm0.04^{p-s}$
$10,000 - 15,000	9	$2.22\pm0.25^{p-y}$	0.93 ± 0.03^{prs}
$15,000 - 20,000	10	$2.67\pm0.25^{p-tv-z}$	$0.91\pm0.03^{p-s}$
Over $20,000	12	$2.91\pm0.22^{q-tv-z}$	$0.90\pm0.03^{p-s}$
No answer	2	3.50 ± 0.53^{rstwyz}	$0.96\pm0.06^{p-s}$

[a]Means in a column sharing a common superscript are not significantly different ($p < 0.05$) using LSD test.

[b]Scoring scale: 1 = $20 or less; 2 = $20 - 40; 3 = $40 - 60
4 = $60 - 80 5 = $80 - 100 6 = over $100

TABLE 14

Analysis of variance of three food shopping characteristics of nonstudent families with employed mothers vs. nonstudent families with unemployed mothers at six income levels

Source of variation	df	Mean squares		
		Weekly food expenditure	Meals eaten weekly away from home by mother	Meals eaten weekly away from home by children
Group	1	2.60*	1.65**	42.02***
Income	5	0.76	0.22	5.90
Interaction	5[a]	0.92	0.09	1.41
Error	23	0.56	0.18	2.42

[a]4 for meals eaten weekly away from home by mother

*Significant at .05 level

**Significant at .01 level

***Significant at .001 level

TABLE 15

Means and standard errors of three food shopping characteristics affected by mother's occupation in nonstudent families

Characteristic	Nonstudent families with employed mothers n=19	Nonstudent families with unemployed mothers n=18
Weekly food expenditure[a]	2.43±0.22	3.10±0.22
Meals eaten weekly away from home by mother[b]	1.42±0.43	1.06±0.43
Meals eaten weekly away from home by children[b]	4.01±0.45	1.32±0.46

[a]Scoring scale: 1 = $20 or less
2 = $20 - 40
3 = $40 - 60
4 = $60 - 80
5 = $80 - 100
6 = over $100

[b]Scoring scale: 1 = 2 or less
2 = 3 - 5
3 = 6 - 10
4 = 11 - 15
5 = more than 15

tics and food shopping knowledge and practices scores are presented in Table 16. Family size, income, weekly food expenditure and expenditure for food eaten away from home were correlated positively. Mother's and father's educations were correlated positively with the number of meals they ate away from home per week. Family size and weekly food expenditure were correlated negatively with meals eaten away from home by father. Children's meals away from home were correlated positively with the number of meals eaten away from home by mother and father. Expenditure for food eaten away from home correlated positively with the number of meals eaten away from home by mother and children. There was a tendency for major food shopping decisions to be made by the mother in larger families and by both the mother and father in smaller families. The number of meals eaten away from home by mothers was correlated negatively with food shopping knowledge and practices scores. Food shopping practices score was correlated negatively with the weekly expenditure for food eaten away from home. Food shopping knowledge and practices scores were correlated positively.

Correlations among family and food shopping characteristics and food shopping practices are listed in Table 17. The practice of menu planning decreased as family size and number of elementary school children increased. Student families organized their shopping lists more frequently than non-student families. Mother's education was negatively correlated

TABLE 16

Correlations among family and food shopping characteristics and food shopping knowledge and practices scores

	Mother's educ.	Father's educ.	Income	Weekly food expend.	Major trip expend.	Major deci. maker	Meals away by mo.	Meals away by fa.	Meals away by child.	Food away expend.	Knowledge score	Practices score
Family size	-0.02	-0.08	0.31**	0.36***	0.43****	-0.24*	0.01	-0.35**	-0.06	0.33**	-0.20	-0.12
No. of presch. children	0.10	0.08	0.23*	0.17	0.11	-0.14	-0.11	-0.03	-0.19	0.18	0.01	0.01
No. of elem. sch. child.	-0.12	-0.01	0.32**	0.26*	0.41***	-0.14	-0.02	-0.12	0.16	0.33**	-0.10	-0.12
Mother's occupation[a]	-0.05	0.27*	0.24*	0.29*	-0.01	-0.18	-0.27*	0.06	-0.28*	0.02	0.02	0.03
Family student status[b]	0.22	0.01	0.59****	0.24*	0.41***	-0.07	-0.10	0.11	0.08	0.28*	0.02	0.04
Mother's education		0.18	0.22	-0.07	0.17	0.11	0.24*	-0.07	0.08	0.12	-0.00	-0.09
Father's education			0.05	0.01	0.08	0.07	-0.09	0.40***	0.05	0.03	-0.05	0.11
Income				0.32**	0.27*	-0.04	-0.13	-0.14	0.04	0.35**	0.14	-0.19
Weekly food expenditure					0.22*	-0.08	-0.16	-0.27*	-0.00	0.34**	-0.13	-0.15
Major trip expenditure						-0.01	-0.07	-0.29*	0.03	0.27*	0.01	0.10
Major decision-maker[c]							0.09	0.01	-0.01	0.03	-0.08	0.10
Meals away by mother								0.22	0.46****	0.25*	-0.28*	-0.28*
Meals away by father									0.32**	0.06	0.12	0.09
Meals away by children										0.35**	0.04	-0.11
Food away expenditure											-0.17	-0.28*
Knowledge score												0.36**

[a] 1 = student or employed; 2 = unemployed

[b] 1 = student family; 2 = nonstudent family

[c] 0 = mother only; 1 = mother and father

*Significant at .05 level

**Significant at .01 level

***Significant at .001 level

****Significant at .0001 level

TABLE 17

Correlations among family and food shopping characteristics and food shopping practices

	Family size	No. of presch. child.	No. of elem. child.	Mother's occupation[a]	Family student status[b]	Mother's education	Father's education	Income	Weekly food expend.	Major trip expend.	No. of food stores	Major decis maker[c]
Food shopping practices												
Made a shopping list	0.07	0.11	-0.03	0.11	0.02	-0.06	-0.06	0.03	-0.16	0.18	-0.01	-0.02
Planned menus	-0.28*	0.01	-0.30**	-0.09	-0.07	-0.04	-0.14	-0.11	-0.13	0.07	-0.05	0.17
Organized shopping list	0.02	0.08	-0.03	0.09	-0.25*	-0.31**	0.05	-0.11	-0.03	0.08	-0.24*	-0.01
Bought only foods on list	0.08	0.13	0.04	0.29*	0.14	0.12	-0.10	0.06	-0.14	0.13	-0.07	-0.04
Bought specials advertised in newspapers	0.10	0.02	0.15	-0.27*	0.17	-0.01	-0.19	0.09	0.04	0.03	0.20	-0.02
Watched checker tally	-0.17	-0.06	-0.17	-0.18	-0.17	-0.08	0.07	-0.25*	-0.06	-0.10	0.23	0.05
Checked sales slip	0.01	-0.01	-0.03	-0.02	-0.01	-0.10	0.00	-0.23	-0.03	0.16	-0.07	-0.03
Paid attention to nutrition labels	-0.01	-0.03	-0.03	-0.06	-0.03	-0.06	-0.02	-0.08	-0.15	0.22	0.09	0.11
Compared prices of national and store brands	-0.20	-0.14	-0.14	-0.07	0.15	0.05	-0.14	0.09	-0.13	0.11	0.21	-0.09
Compared unit costs	0.12	0.07	0.03	-0.01	0.18	0.05	0.03	0.11	0.01	0.12	0.23*	-0.07
Read list of ingredients	0.06	0.12	-0.01	0.21	0.11	0.10	0.18	0.04	-0.02	-0.04	0.11	0.05
Used cost per serving when buying meat	-0.10	0.04	-0.09	0.07	0.07	0.07	0.05	-0.01	-0.08	0.19	-0.07	0.05

[a] 1 = student or employed; 2 = unemployed

[b] 1 = student family ; 2 = nonstudent family

[c] 0 = mother only; 1 = mother and father

*Significant at .05 level

**Significant at .01 level

with organizing shopping lists. Number of food stores shopped at in the last month was negatively correlated with organizing shopping lists and positively correlated with comparing unit costs. Families with student or employed mothers bought more specials advertised in newspapers. As income increased the food shopper was less likely to watch the checker tally the prices for the groceries.

Frequency of Food Group Consumption

Food and beverage consumption frequencies (cumulative percentages) for 75 food shoppers are listed in Table 18. All four basic food groups (bread and cereals, fruits and vegetables, meat and milk) were consumed at least once a day by over 90 percent of the respondents. Sixty-eight percent of the shoppers consumed foods in the milk group and 74 percent consumed foods in the meat group at least twice a day. Sixty-five percent of the respondents consumed foods in the fruit and vegetable group at least four times per day. High vitamin A fruits and vegetables were consumed at least every other day by 62 percent of the respondents and three-fourths of them consumed high vitamin C fruits and vegetables at least once daily. Twelve percent of the food shoppers consumed foods in the bread and cereal group at least four times daily. Over one-half (54%) of the respondents consumed a high calorie/low nutrient food at least twice a day and eighty-nine percent of them ate that type of food at least once daily. Over one-half (53%) of the food shoppers consumed low calorie/low nutrient bev-

TABLE 18

Food group consumption frequencies for 75 food shoppers

Food group	Frequency of consumption				
	Every other day	One time per day	Two times per day	Three times per day	Four times per day
	Cumulative percentage				
Milk	97	92	68	28	14
Bread and Cereal	99	96	72	41	12
Meat	100	97	74	27	11
Animal protein	99	96	45	14	5
Vegetable protein	41	14	2	2	0
Fruits and vegetables	100	100	99	87	65
High vitamin A	62	22	7	0	0
High vitamin C	96	74	31	8	4
Other	100	99	65	31	15
Butter and margarine	81	78	27	7	0
High calorie/low nutrient foods and beverages	95	89	54	22	4
Low calorie/low nutrient beverages (tea, coffee, low calorie pop)	85	74	53	24	10

erages at least twice a day and three-fourths of them consumed a beverage from that group at least once a day.

Correlations Among Guttman Food Scale Ranking and Family and Food Shopping Characteristics, Food Shopping Knowledge and Practices Scores and Food Shopping Practices

A four step Guttman food scale was developed with a coefficient of scalability of 0.62 (Table 19). According to the scale four percent of the respondents did not consume any of the food groups at the specified consumption frequency. Twenty-five percent of the sample were at scale step number one and consumed foods in the meat group at least 1.6 times per day. Thirty-nine percent of the respondents were at scale step 2 and consumed foods in the milk group at least 2.1 times per day plus the meat group. Twenty-seven percent of the respondents were at scale step 3 and consumed fruits and vegetables at least 5.1 times per day plus the milk and meat groups. Only five percent consumed all four food groups at the specified frequency.

Correlations among food scale rankings and family and food shopping characteristics, food shopping knowledge and practices scores and food shopping practices are presented in Table 20. Rankings on the food scale were correlated negatively with family income suggesting that as income decreases, foods in the bread and cereal group are consumed more frequently. Correlations among food scale ranking and other variables were not significant.

TABLE 19

Basic four food group consumption scale for 75 food shoppers

Scale step number	Food group	Individual consumption frequencies/day ≥	Number in scale step	Percent in scale step	Number in scale with no errors	Percent in scale with no errors
0			3	4	3	100
1	Meat	1.6	19	25	15[a]	80
2	Milk	2.1	29	39	23[b]	79
3	Fruits & vegetables	5.1	20	27	16[c]	80
4	Breads & cereals	4.0	4	5	4	100

[a]Three respondents consumed food group 2 only and one respondent consumed food group 3 only at the specified frequency.

[b]Five respondents consumed food groups 1 and 3 and one respondent consumed food groups 1 and 4 at the specified frequency.

[c]One respondent consumed food group 1, 2 and 4 and one respondent consumed food groups 2, 3 and 4 at the specified frequency.

Coefficient of reproducibility	.91
Minimum marginal reproducibility	.76
Percent improvement	.15
Coefficient of scalability	.62

TABLE 20

Correlations Among Food Scale Ranking and Family and Food Shopping Characteristics, Food Shopping Knowledge and Practices Scores and Food Shopping Practices

Variable	Correlation
Family size	-0.01
Number of preschool children	-0.03
Number of elementary school children	-0.07
Mother's occupation[a]	-0.18
Family student status[b]	-0.08
Mother's education	-0.08
Father's education	-0.07
Income	-0.26*
Weekly food expenditure	0.20
Typical major food shopping trip expenditure	0.16
Number of food stores shopped at in last month	-0.12
Person who makes major food shopping decisions[c]	0.01
Meals eaten weekly away from home by mother	-0.06
Meals eaten weekly away from home by father	-0.22
Meals eaten weekly away from home by children	0.01
Weekly expenditure for food eaten away from home	-0.02
Food shopping knowledge total score	-0.23
Food shopping practices total score	0.05
Made a shopping list	-0.08
Planned menus before making shopping list	0.13
Organized shopping list	-0.04
Bought only foods on list	-0.05
Bought specials advertised in newspapers	0.05
Watched checker tally groceries	-0.10
Checked sales slip	0.16
Paid attention to nutrition labels	0.01
Compared prices of national and store brands	-0.15
Compared unit prices	-0.01
Read list of ingredients on mixed products	-0.08
Used cost per serving as guide when buying meat	-0.11

[a] 1 = employed or student; 2 = unemployed

[b] 1 = student family; 2 = nonstudent family

[c] 0 = mother only; 1 = mother and father

* Significant at .05 level

SUMMARY

Food shopping behavior of 75 two-parent families with one or two preschool children enrolled in three Kansas State University-sponsored child care centers was investigated. Information regarding family and food shopping characteristics, food shopping knowledge and practices and frequency of food use by the food shopper was obtained by a mail questionnaire completed by the food shopper.

All fathers and approximately two-thirds of the mothers were employed outside the home or were attending school. Most parents were working towards or had completed college degrees. Annual family income was less than $5,000 for 16 percent of the families, $5,000 to $10,000 for 19 percent, $10,000 to $20,000 for 43 percent and $20,000 or more for 17 percent.

The majority of the families spent $20 to $60 per week for food. Most families did their major food shopping once a week or less often in chain or discount supermarkets, and they shopped at two or three different stores per month. The mothers made the major food shopping decisions in most of the families. Approximately half of all family members ate two or less meals away from home per week, spending $5 to $15. The three most important factors influencing food purchases were cost, family likes and nutritive value of food.

Most of the food shopping knowledge questions were answered correctly by over 90 percent of the respondents. Over

70 percent of the shoppers made shopping lists, bought specials advertised in newspapers, watched the checker tally groceries, read nutrition labels, compared prices of national and store brands, compared unit costs and read the list of ingredients on mixed products. Less than half of the shoppers planned menus, organized their shopping lists, bought only what was on their lists, checked sales slips and used cost per serving as a guide when buying meat.

Families with employed or student mothers had fewer members, fathers with less education and children who ate more meals away from home than families with unemployed mothers. Nonstudent families with employed mothers spent less money per week for food and had mothers and children who ate more meals away from home than families with unemployed mothers. Education of mothers was higher in families with incomes over $25,000 and lower in families with incomes below $5,000 than in families at any other income. More money was spent on a major food shopping trip in families with incomes of $10,000 to $20,000 than in families with incomes of less than $10,000 or over $20,000. In most families, food shopping practices and knowledge scores were not affected by parents' occupations and income.

Food group consumption frequencies showed that sixty-eight percent of the food shoppers consumed foods in the milk group and 74 percent consumed foods in the meat group at least twice a day. Sixty-five percent of the respondents consumed foods in the fruit and vegetable group at least four times per

day. High vitamin A fruits and vegetables were consumed at least once every other day by 62 percent of the respondents and three-fourths of them consumed high vitamin C fruits and vegetables at least once daily. Twelve percent of the food shoppers consumed foods in the bread and cereal group at least four times daily. About one-half of the respondents consumed a high calorie/low nutrient food and a low calorie/low nutrient beverage at least twice a day. Rankings on the Guttman food scale were correlated negatively with family income, but they were not correlated significantly with other variables.

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REFERENCES

Abdel-Ghany, M., and Schrimper, R.A. Food consumption expenditures and education of the homemaker. Home Economics Research Journal, 1978, 7, 104-106.

Burt, J.V., and Hertzler, A.A. Parental influence on child's food preference. Journal of Nutrition Education, 1978, 10, 127-128.

Department of Health, Education and Welfare, Health Resources Administration. First Health and Nutrition Examination Survey, U.S., 1971-1972, Dietary Intake and Biochemical Findings. (DHEW Publication No. (HRA) 74-1219-1), 1974.

Department of Health, Education and Welfare, Food and Drug Administration. Consumer Nutrition Knowledge Report II, 1975-76. (DHEW Publication No. (FDA) 76-2059), 1976

Department of Health, Education and Welfare, Health Services and Mental Health Administration. Ten State Nutrition Survey: 1968-70. (DHEW Publication No. (HSM) 72-8134), 1972.

Dwyer, J., and Alston, E. Nutrition in family life. Food Product Development, 1976 (November), 49-50.

Fusillo, A.E., and Beloian, A.M. Consumer nutrition knowledge and self-reported food shopping behavior. American Journal of Public Health, 1977, 67, 846-850.

Fusillo, A.E. Testing consumers' food IQ. FDA Consumer, 1976, (May), 29-30.

Guttman, L. Cornell technique for scale construction. In O'Brien, R.W., Schrag, C.C., and Martin, W.T. (Ed.). Readings in General Sociology. Boston: Houghton Mifflin, 1951.

Hacklander, E. Consumer lifestyles and shopping behavior. National Food Review, 1978, (January), 28. (a)

Hacklander, E. Do working wives shop differently for food?. National Food Review, 1978, (April), 20-23. (b)

Ikeda, J. Expressed nutrition information needs of low-income homemakers. Journal of Nutrition Education, 1975, 7, 104-106.

Kaitz, E. Food shopping patterns. National Food Review, 1978, (September), 57.

Lamkin, G., Hielscher, M.L., and Janes, H.B. Food purchasing practices of young families. Journal of Home Economics, 1970, 62, 598-604.

Menzel, H. A new coefficient for scalogram analysis. Public Opinion Quarterly, 1953, 17, 268-280.

Metheny, M.Y., Hunt, F.E., Patton, M.B., and Heye, H. Diets of preschool children - I. Nutritional findings and family marketing practices. Journal of Home Economics, 1962, 54, 297-303.

TenHouten, W.D. Scale gradient analysis: A statistical method for constructing and evaluating Guttman scales. Sociometry, 1969, 32, 80-98.

Thorelli, H.B., and Thorelli, S.V. Consumer Information Systems and Consumer Policy. Cambridge, Massachusetts: Ballinger Publishing Company, 1977.

United States Department of Agriculture, Agriculture Research Service. Dietary Levels of Households in the United States, Household Food Consumption Survey, 1965-66. Washington, D.C.: U.S. Government Printing Office, 1974.

United States Department of Agriculture, Agricultural Research Service. Homemakers' Food and Nutrition Knowledge, Practices, and Opinions. Washington, D.C.: U.S. Government Printing Office, 1975.

APPENDIX

CONSUMER QUESTIONNAIRE

TO BE COMPLETED BY THE PERSON WHO IS RESPONSIBLE FOR MOST OF YOUR FOOD SHOPPING

PART I: GENERAL INFORMATION

Directions: Please check the blank that fits your situation.

1. Your age in years

_____ under 20
_____ 20-25
_____ 25-30
_____ 30-35
_____ Over 35

2. Your sex

_____ male
_____ female

3. Your marital status at the present time

_____ married
_____ single
_____ divorced
_____ separated
_____ other, please specify _____

4. Number of persons in your household

_____ 2
_____ 3
_____ 4
_____ 5
_____ 6
_____ 7

5. Number of preschool children

_____ none
_____ 1
_____ 2
_____ 3
_____ 4

6. Number of elementary school children age 12 or younger

_____ none
_____ 1
_____ 2
_____ 3
_____ 4

7. Number of children age 13 or over

_____ none
_____ 1
_____ 2
_____ 3
_____ 4

PART I cont.

8. Your occupation

_____ professional and technical (eg. nurse, lawyer, engineer, teacher)
_____ clerical (eg. secretary, sales clerk)
_____ business owner or manager
_____ operative and craftsman (eg. machine operator, carpenter)
_____ farmer
_____ farmer and other employment
_____ unskilled worker
_____ military
_____ student
_____ unemployed
_____ other, please specify _____

9. Your spouse's occupation

_____ professional and technical
_____ clerical
_____ business owner or manager
_____ operative and craftsman
_____ farmer
_____ farmer and other employment
_____ unskilled worker
_____ military
_____ student
_____ unemployed
_____ other, please specify _____

10. Your education

_____ 8th grade or less
_____ some high school
_____ high school graduate
_____ technical school or vocational school graduate
_____ some college
_____ college graduate
_____ graduate school
_____ other, please specify _____

11. Your spouse's education

_____ 8th grade or less
_____ some high school
_____ high school graduate
_____ technical school or vocational school graduate
_____ some college
_____ college graduate
_____ graduate school
_____ other, please specify _____
_____ not applicable

PART I cont.

12. Average family yearly income after taxes

_____ less than $5,000
_____ $5,000 - $10,000
_____ $10,000 - $15,000
_____ $15,000 - $20,000
_____ $20,000 - $25,000
_____ over $25,000

13. Amount of money spent on your typical major food shopping trip

_____ $20 or less
_____ $20 - $40
_____ $40 - $60
_____ $60 - $80
_____ $80 - $100
_____ over $100

14. Average amount of money spent weekly on food

_____ $20 or less
_____ $20 - $40
_____ $40 - $60
_____ $60 - $80
_____ $80 - $100
_____ over $100

15. Frequency of major food shopping

_____ more than once a week
_____ once a week
_____ twice a month
_____ once a month
_____ less than once a month

16. Total number of meals eaten away from home each week.
(Place a ✓ in the appropriate category for each family member. The total number of checks should equal the total number of family members.)
Exclude sack lunches.

	You	Spouse	1st child	2nd child	3rd child	4th child	other
2 or less							
3 to 5							
6 to 10							
11 to 15							
more than 15							
not applicable							

17. Average amount spent weekly for food eaten away from home.
Include day care and school lunches.

_____ less than $5
_____ $5 to $10
_____ $10 to $15
_____ $15 to $20
_____ $20 to $25
_____ over $25

PART I cont.

18. Person(s) who makes major food shopping decisions

_____ yourself
_____ your spouse
_____ you and your spouse
_____ your and your children
_____ other, please specify _____

19. Type of food store used for major food shopping

_____ chain supermarket (e.g. Safeway)
_____ independent supermarket (IGA)
_____ small neighborhood grocery
_____ discount supermarket (Food For Less, Warehouse Market)
_____ convenience or quick-stop stores
_____ other, please specify _____

20. Number of different food stores you have shopped at in the last month including the one used for major food shopping.

_____ only 1 store
_____ 2 stores
_____ 3 stores
_____ 4 stores
_____ 5 stores
_____ more than 5 stores

21. Factors influencing food purchases
(Check the three most important considerations for you.)

	most imp.	2nd most imp.	3rd most imp
Cost			
Convenience			
Your likes			
Your spouse's likes			
Preschool child's likes			
School age child's likes			
Teenager's likes			
Combination of all family members' likes			
Nutritive value of foods			
Health problems of family members			
Other, please specify			

PART II: FOOD SHOPPING KNOWLEDGE

Directions: Please circle "T" if you agree with the statement and circle "F" if you disagree.

T F 1. Lower priced canned fruits and vegetables are not as nutritious as higher priced ones.

T F 2. There must be more beef than any other single item in stew if the list of ingredients reads, "beef, potatoes, carrots, salt,...."

T F 3. When the same cereal is offered in packages of several sizes, the most economical buy is determined by comparing the cost per unit (e.g. cost per ounce).

T F 4. Canned food should be selected according to its intended use (e.g. fruit halves for dessert and fruit pieces for fruit cup).

T F 5. National brands are always superior in quality to store brands.

T F 6. The nutrition label on a food provides information about the nutrient content for one serving of that food.

T F 7. Fruit juices and fruit drinks are equivalent in food value.

T F 8. A T-bone steak is more nutritious than a round steak.

T F 9. Skim milk compares favorably to whole milk in calcium content.

T F 10. Snack food such as candy, potato chips and pop are high in fats or carbohydrates and low in protein, vitamins, and minerals.

T F 11. The date stamped on certain foods helps the consumer judge the freshness of the product.

T F 12. Cut-up chicken costs less than whole chicken.

CONSUMER QUESTIONNAIRE

Part III: FOOD SHOPPING PRACTICES

Directions: Please answer yes or no to the following questions according to your usual food shopping practices.

_____1. I make a shopping list.

_____2. I plan menus before I make a shopping list.

_____3. I organize my shopping list by the location of items within the store or by food groups.

_____4. I buy only what is on my list.

_____5. I buy specials advertised in the newspapers.

_____6. I watch the checker tally my groceries.

_____7. I check my sales slip.

_____8. I pay attention to nutrition labels.

_____9. I compare the prices of national brands and store brands.

_____10. I compare unit costs (e.g. cost per ounce) of different size containers in selecting a food product.

_____11. I read the list of ingredients on mixed products (e.g. fruit cocktail) to determine the actual composition of the product and the relative amount of each ingredient.

_____12. I use cost per serving rather than cost per pound as a guide in buying meat.

PART IV: Food Eaten By You - do not include other family members

Directions: For the following list of foods, please indicate the number of times on the average you eat them per day, week, month or year whichever is appropriate. Record the number of times eaten in the first column and circle the appropriate frequency in the last column. For example, if you eat bread 3 times per day, record this as:

No. of times	Frequency
3	(D) W M Y

D = per day
W = per week
M = per month
Y = per year

If you never eat a food, put a 0 in no. of times.
For seasonal foods, estimate total times during the year.

	No. of times	Frequency
1. whole milk		D W M Y
2. 2% milk		D W M Y
3. skim milk		D W M Y
4. pudding or custard		D W M Y
5. yogurt		D W M Y
6. ice cream		D W M Y
7. cottage cheese		D W M Y
8. cheese		D W M Y
9. ham		D W M Y
10. pork		D W M Y
11. sausage		D W M Y
12. cold cuts		D W M Y
13. hot dogs		D W M Y
14. beef		D W M Y
15. lamb		D W M Y
16. chicken		D W M Y
17. turkey		D W M Y
18. fish		D W M Y
19. liver		D W M Y
20. eggs, scrambled, fried, poached, deviled		D W M Y

	No. of times	Frequency
21. peanut butter		D W M Y
22. nuts		D W M Y
23. cooked dried beans, such as pork 'n beans, lentils, bean soup, soy beans, etc.		D W M Y
24. carrots, cooked or raw		D W M Y
25. squash		D W M Y
26. sweet potatoes or pumpkin		D W M Y
27. broccoli		D W M Y
28. green beans		D W M Y
29. peas		D W M Y
30. corn		D W M Y
31. brussels sprouts		D W M Y
32. cabbage		D W M Y
33. beets		D W M Y
34. tomatoes, including canned raw in sauce or as tomato juice, but excluding catsup		D W M Y
35. dark, leafy greens, such as chard, spinach beet greens, dandelion greens, turnip greens		D W M Y
36. lettuce		D W M Y
37. rice		D W M Y
38. noodles, macaroni, spaghetti		D W M Y
39. potatoes		D W M Y
40. pizza		D W M Y
41. fortified fruit-flavored drink, such as Hi C Tang, Start, Awake, Orange Plus, Wagner's		D W M Y
42. oranges and orange juice		D W M Y
43. grapefruit and grapefruit juice		D W M Y
44. tangerines		D W M Y

	No. of times	Frequency
45. other fruit juices, such as apple juice grape juice, prune juice, apricot necter		D W M Y
46. apples		D W M Y
47. bananas		D W M Y
48. pears		D W M Y
49. applesauce		D W M Y
50. fruit cocktail		D W M Y
51. apricots		D W M Y
52. pineapple		D W M Y
53. peaches		D W M Y
54. muskmelon		D W M Y
55. cantaloup		D W M Y
56. watermelon		D W M Y
57. strawberries and other berries		D W M Y
58. dried fruits		D W M Y
59. hot cereal		D W M Y
60. cold cereal		D W M Y
61. white bread and bread products such as roll, biscuit, muffin, buns		D W M Y
62. whole grain bread and bread products such as wheat, rye, etc.		D W M Y
63. sweet roll or donut		D W M Y
64. pancake or waffle		D W M Y
65. butter or margarine		D W M Y
66. pie		D W M Y
67. cake		D W M Y
68. cookies		D W M Y
69. other baked desserts		D W M Y

	No. of times	Frequency
70. candy or candy bars		D W M Y
71. crispy, munching foods, such as potato chips corn chips, pretzels, popcorn, fritoes		D W M Y
72. crackers		D W M Y
73. sugar, syrup, honey, jam, jelly, marmalade, preserves, apple butter, sugar used in drinks and on cereal		D W M Y
74. low calorie pop		D W M Y
75. regular pop or koolaid		D W M Y
76. instant breakfast		D W M Y
77. dietary beverage, such as Slender, Metrecal Sego, etc.		D W M Y
78. tea, coffee		D W M Y
79. beer, wine, whiskey, or other alcoholic beverages		D W M Y

College of Home Economics

APPLICATION FOR APPROVAL TO USE HUMAN SUBJECTS

1. ACTIVITY OR PROJECT TITLE: Food Shopping Behavior of Parents with Young Children

2. PROPOSED SPONSOR (IF ANY): Agriculture Experiment Station

3. Kathleen Newell (NAME (applicant must be faculty member)) | Foods and Nutrition (DEPARTMENT) | 532-5508 (PHONE)

4. RISK

A. Are there risks to human subjects? x yes _____ no

If yes, briefly describe. (See definition of risk, page 2 of the Handbook.)

Risks will be minimal, but some participants may be sensitive to questions that will be included in the instrument, such as those regarding family income or shopping behavior

B. Describe the benefits of the research

a) to the subjects: Improvement of nutritional status of families with young children through analysis of food shopping behavior

b) to the discipline/profession: Identification of food shopping behavior for use in developing effective techniques for communicating nutrition information to families with young children.

5. INFORMED CONSENT: General informed consent requirements are described on pages 3 and 4 of the Handbook. The written informed consent document must include the following: (1) a fair explanation of procedures to be followed, (2) description of discomforts and risks, (3) description of benefits, (4) disclosure of appropriate alternatives available, (5) an offer to answer inquiries, and (6) instructions that the subject is free to withdraw consent and participation at any time. Special informed consent policies relative to questionnaire/survey studies are described in the "Handbook Supplement" dated July, 1977.

On what page(s) of the proposal are your informed consent procedure and/or forms described? (If not a part of your proposal, the procedures and informed consent document must accompany this application.)

See page 5 and appendix of proposal

6. EMERGENCIES

A. Are any possible emergencies anticipated? _____yes __X__no

If yes, describe briefly or give the page of the proposal where these are described.

B. Describe procedures for dealing with emergencies, or give the page of the proposal on which these descriptions may be found.

7. PRIVACY: On what page of the proposal do you discuss procedures for keeping research data private? appendix This should include procedures for maintaining anonymity of subjects. Supplemental information concerning privacy of data may be discussed below. (See page 3 of the Handbook on "Safeguarding Information.")

8. STATEMENT OF AGREEMENT: The below named individual certifies that he/she has read and is willing to conduct these activities in accordance with the Handbook for Research, Development, Demonstration, or Other Activities Involving Human Subjects. Further, the below named individual certifies that any changes in procedures from those outlined above or in the attached proposal will be cleared through Committee 8220, The Committee on Research Involving Human Subjects via the College of Home Economics Subcommittee.

Signed Kathleen Powell (Applicant) Date 9/12/79

Send applications to: Dr. Robert H. Poresky
306 Justin Hall

KSU
KANSAS STATE UNIVERSITY

Department of Family and Child Development

Justin Hall
Manhattan, Kansas 66506
913-532-5510

19 September 1978

Dr. Kathleen Newell
Foods and Nutrition
College of Home Economics

Dear Dr. Newell:

The College of Home Economics Subcommittee on Research Involving Human Subjects has recommended approval of your study titled, Food Shopping Behavior of Parents with Young Children. Please notify the subcommittee of any significant changes in your study which may affect human subjects prior to their implementation.

Sincerely,

Robert H. Poresky, Chair

INFORMED CONSENT

This survey is being conducted under Guidelines for Research Involving Human Subjects established by Kansas State University. By cooperating you will help provide answers to important questions; however, your participation is strictly voluntary. You should omit any questions which you feel unduly invade your privacy or which are otherwise offensive to you. Confidentiality is guaranteed. Your name will not be associated with your answers in any public or private report of the results.

I have read the above statements and letter explaining the nature and purpose of the research. I fully understand the procedures to be used and hereby volunteer to complete the questionnaire.

Date_____Signed_____

Dear Parents,

The Department of Foods and Nutrition at Kansas State University, in cooperation with the University Child Care Centers, is conducting a nutrition education research project. The project involves a survey of food shopping behavior of parents with children in the child care facilities.

We are requesting your cooperation in completing the enclosed questionnaire. It includes questions concerning your food shopping knowledge, practices, and food intake. It is extremely important to the success of the project that you complete the form as fully and accurately as possible. Please return the completed questionnaire and signed consent form in the enclosed envelope by October 13, 1978.

We appreciate the time and effort which will be necessary for your completion of this questionnaire. Please contact us if you have questions concerning the project.

Sincerely,

Eunice Bassler

Eunice Bassler
Department of Foods and Nutrition

Dr. Murray Krantz
Director of Child Care Centers

Approved:

Major Professor, Department of Foods and Nutrition

Head, Department of Foods and Nutrition

Dear Parents,

The response to our survey of food shopping behavior of parents with children in the University Child Care Centers has been very good. However, there are still several families who have not returned the questionnaire. Because of the importance of having as many returns as possible, we are again requesting that you complete the questionnaire and return it to us as soon as possible. We have enclosed an additional form for your convenience.

Thank you for your time and effort.

Sincerely,

Eunice Bassler

Eunice Bassler

Department of Foods and Nutrition

M. Krantz

Dr. Murray Krantz

Director of Child Care Centers

TABLE 21

Food groups

Milk

whole milk	custard	cottage cheese
2% milk	pudding	cheese
skim milk	yogurt	pizza
ice cream		

Bread and cereal

hot cereal	pancake	macaroni
cold cereal	waffle	spaghetti
white bread	rice	crackers
whole grain bread	noodles	

Meat

Animal protein		Vegetable protein
ham	pork	peanut butter
sausage	hot dogs	nuts
cold cuts	beef	cooked dried beans
lamb	chicken	
turkey	fish	
liver	eggs	

Fruits and vegetables

High vitamin A	High vitamin C	Other
carrots	broccoli	green beans
squash	brussels sprouts	peas
sweet potatoes	dark leafy greens	corn
pumpkin	oranges and juice	beets
broccoli	grapefruit and juice	lettuce
dark leafy greens	tangerines	potatoes
apricots	muskmelon or cantaloupe	apples
peaches	strawberries	bananas
	other berries	pears
		applesauce
		fruit cocktail
		pineapple
		watermelon
		dried fruits
		fruit juices

High calorie/low nutrient foods

sweet roll	doughnut	pie
cake	cookies	baked desserts
candy	candy bars	sugar, syrup, honey
jam, jelly	regular pop	koolaide
fruit flavored drinks	crispy munching foods	alcohol

Low calorie/low nutrient beverages

tea	coffee	low calorie pop

Butter and margarine

FOOD SHOPPING BEHAVIOR OF PARENTS WITH YOUNG CHILDREN

by

EUNICE BASSLER

B. A., University of Northern Iowa, 1974

AN ABSTRACT OF A MASTER'S THESIS

submitted in partial fulfillment of the

requirements for the degree

MASTER OF SCIENCE

Department of Foods and Nutrition

KANSAS STATE UNIVERSITY
Manhattan, Kansas

1979

ABSTRACT

A major objective of nutrition education is to communicate information to consumers to help them make food choices in the food market that will meet the nutrient needs of their families and stay within their food budgets. Information regarding consumer food shopping behavior is basic to developing such a communication strategy.

Food shopping behavior of 75 two-parent families with one or two preschool children enrolled in three Kansas State University-sponsored child care centers was investigated. Information regarding family and food shopping characteristics, food shopping knowledge and practices and frequency of food use by the food shopper was obtained by a mail questionnaire completed by the food shopper.

All fathers and approximately two-thirds of the mothers were employed outside the home or were attending school. Most parents were working towards or had completed college degrees. Annual family income was less than $5,000 for 16 percent of the families, $5,000 to $10,000 for 19 percent, $10,000 to $20,000 for 43 percent and $20,000 or more for 17 percent.

The majority of the families spent $20 to $60 per week for food. Most families did their major food shopping once a week or less often in chain or discount supermarkets, and they shopped at two or three different stores per month. The mothers made the major decisions in most of the families. Approximately half of all family members ate two or less meals away from home per week,

spending $5 to $15. The three most important factors influencing food purchases were cost, family likes and nutritive value of food.

Most of the food shopping knowledge questions were answered correctly by over 90 percent of the respondents. Over 70 percent of the shoppers made shopping lists, bought specials advertised in newspapers, watched the checker tally groceries, read nutrition labels, compared prices of national and store brands, compared unit costs and read the list of ingredients on mixed products. Less than half of the shoppers planned menus, organized their shopping lists, bought only what was on their lists, checked sales slips and used cost per serving as a guide when buying meat.

Families with employed or student mothers had fewer members, fathers with less education and children who ate more meals away from home than families with unemployed mothers. Nonstudent families with employed mothers spent less money per week for food and had mothers and children who ate more meals away from home than families with unemployed mothers. Education of mothers was higher in families with incomes over $25,000 and lower in families with incomes below $5,000 than in families at any other income. More money was spent on a major food shopping trip in families with incomes of $10,000 to $20,000 than in families with incomes of less than $10,000 or over $20,000. In most families, food shopping practices and knowledge scores were not affected by parents' occupations and income.

Food group consumption frequencies showed that sixty-eight percent of the food shoppers consumed foods in the milk group and 74 percent consumed foods in the meat group at least twice a day. Sixty-five percent of the respondents consumed foods in the fruit and vegetable group at least four times per day. High vitamin A fruits and vegetables were consumed at least once every other day by 62 percent of the respondents and three-fourths of them consumed high vitamin C fruits and vegetables at least once daily. Twelve percent of the food shoppers consumed foods in the bread and cereal group at least four times daily. About one-half of the respondents consumed a high calorie/low nutrient food and a low calorie/low nutrient beverage at least twice a day. Rankings on the Guttman food scale were correlated negatively with family income, but they were not correlated significantly with other variables.